

Abstract

Side Pumping of Optical Fiber Systems
Via Multiple Delivery Fibers

Efficient delivery of large amounts of pump laser power distributed along the cladding (11, 54) of a single core (6) or multiple
5 core (7, 51) laser fiber, without degrading the fiber integrity or compromising the fiber's waveguiding property, is accomplished by injecting the power into the cladding via delivery fibers (18, 30, 42, 62) permanently affixed to a peripheral wall (20, 56) at an angle that satisfies the condition for total internal reflection of the pump
10 radiation so that it is confined within the inner cladding of the laser fiber. In one embodiment, the laser fiber (51) is wrapped around a drum (53). Each delivery fiber has a numerical aperture (NA) less than half the NA of the laser fiber, and a core 21 having a refractive index substantially the same as that of the inner cladding (11) of the
15 laser fiber.